

In the Claims

Claim 1 (currently amended): A method of fabricating an interconnect for a semiconductor component, comprising:

providing a semiconductor component, the component having a first side at a first elevational level and an opposing second side at a second elevational level above the first elevational level;

forming an opening which extends entirely through the component, the opening accordingly extending from the first side of the component to the opposing second side of the component, the opening having sidewalls;

depositing a first material along the sidewalls of the opening, the depositing being conducted at a temperature of less than or equal to about 200°C; and

plating a second solder-wetting material within the opening and over the first material, the solder-wetting material only partially filling the opening; and

forming solder within the opening and along the solder-wetting material, the solder filling the opening and extending from the first elevational level of the first side of the component to the second elevational level of the opposing second side of the component.

Claim 2 (original): The method of claim 1 wherein the depositing comprises one or both of ALD and CVD.

Claim 3 (original): The method of claim 1 wherein the depositing comprises one or both of ALD and CVD, and wherein the depositing utilizes multiple cycles which individually form less than or equal to about 10Å of the first material.

Claim 4 (original): The method of claim 3 wherein the first material is formed to a thickness of at least about 100Å.

Claim 5 (original): The method of claim 3 wherein the first material is formed to a thickness of from about 100Å to about 300Å.

Claim 6 (original): The method of claim 1 wherein the component comprises a semiconductor material wafer.

Claim 7 (original): The method of claim 1 wherein the component comprises a monocrystalline silicon wafer.

Claim 8 (original): The method of claim 1 wherein the opening has a length through the component and a maximum dimension orthogonal to the length of less than or equal to about 100 microns.

Claim 9 (original): The method of claim 1 wherein the first material is an electrically-conductive material.

Claim 10 (original): The method of claim 1 wherein the first material comprises a metal nitride.

Claim 11 (original): The method of claim 1 wherein the first material consists essentially of a metal nitride.

Claim 12 (original): The method of claim 1 wherein the first material consists of a metal nitride.

Claim 13 (original): The method of claim 1 wherein the first material comprises one or more of titanium nitride, tungsten nitride, tantalum nitride and hafnium nitride.

Claim 14 (original): The method of claim 1 wherein the first material consists essentially of one or more of titanium nitride, tungsten nitride, tantalum nitride and hafnium nitride.

Claim 15 (original): The method of claim 1 wherein the first material consists of one or more of titanium nitride, tungsten nitride, tantalum nitride and hafnium nitride.

Claim 16 (original): The method of claim 1 wherein the plating is electroless plating.

Claim 17 (currently amended): The method of claim 16 wherein the second solder-wetting material comprises nickel.

Claim 18 (original): The method of claim 16 wherein the first material comprises a metal nitride, and further comprising activating the metal nitride with one or both of Hf and Pd prior to the electroless plating.

Claim 19 (original): The method of claim 18 wherein the activating the metal nitride forms a layer comprising one or both of Hf and Pd over the metal nitride, and wherein the layer comprising one or both of Hf and Pd has a thickness of from about 1 micron to about 7 microns.

Claim 20 (original): The method of claim 19 wherein the layer comprising one or both of Hf and Pd has a thickness of at least about 5 microns.

Claim 21 (currently amended): The method of claim 1 ~~wherein the component comprises a first side and an opposing second side, wherein the opening extends from the first side to the second side, the method~~ further comprising forming a conductive-material pad over the first side of the component, and wherein the opening is formed through the conductive-material pad.

Claims 22-75 (cancelled).

Claim 76 (new): The method of claim 18 wherein the plating of the solder-wetting material is conducted at a temperature of from about 59°C to about 64°C.